UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

EC 2
960127

Jn 3/14

Ref: 8MO

May 2, 1996

Ms. Debbie L. R. Austin
Forest Supervisor
Beaverhead-Deerlodge National Forest
420 Barrett Street
Dillon, Montana 59725

Re: Boulder and Wyman Gulch
Vegetation Management Draft
Environmental Impact Statement

Dear Ms. Austin:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, the Environmental Protection Agency, Region VIII, Montana Office (EPA) reviewed the above-referenced Draft Environmental Impact Statement (DEIS).

The Beaverhead-Deerlodge National Forest, Philipsburg Ranger District, has evaluated a proposed action, Alternative B, and four additional action alternatives, Alternatives C, D, E, and F, and Alternative A, No Action, for vegetation management and travel management in the 21,000 acre Boulder Wyman project area northeast of Philipsburg, Montana. All action alternatives implement different levels and combinations of timber harvest methods, road management and prescribed fire to provide a range of timber size classes to restore and maintain natural ecological functions and improve forest stand health including Douglas-fir stands, quaking aspen, and shrubs for wildlife, and to provide a timber supply to the wood products industry, and to close and obliterate roads no longer needed for management and to increase elk habitat effectiveness. The DEIS identifies Alternative D as the preferred alternative.

The EPA is supportive of the purpose of the proposed vegetation management project. We suggest that the Forest Service carefully review and evaluate the rationale for selecting treatment methods and units, and consider constructing a modified preferred alternative by choosing treatment methods and units from among alternatives. The EPA believes that it may be possible to construct a modified preferred alternative to better optimize the ability of the preferred alternative to address project purpose and need and the significant issues (i.e., fisheries and cumulative watershed effects, roadless lands, timber supply and economics, and big game habitat).

An example of a modified alternative which we suggest that the Forest Service evaluate would include the following:

> Proposed treatment units in Alternative C, with the exception of deleting unit 5 in the Roadless Area (to be sensitive to the Roadless issue). Although we do believe that a well planned and managed underburning program could be accommodated without unduly impacting roadless lands or fisheries and big game habitat.
>
> Units 1A, 1B, 2A, 2B, in the Wyman Gulch drainage and units 3C, 3D, 3E, and 3F in the South Boulder Creek drainage from Alternative D.

It would appear that this modified alternative would be sensitive to the big game habitat and roadless issues of Alternative D, and be more sensitive to the bull trout fisheries in the Boulder Creek drainage than the preferred alternative (since it would delete Alternative D units which appear to be located closest to tributaries to Boulder Creek, and otherwise utilizes the logging units/methods of Alternative C). This modified alternative would involve harvest of 8,536 MBF of sawtimber and 516 MBF of post and pole volume, and thus, would appear also to be more sensitive to the timber supply and economics issue.

We note of course that the Forest Service will need to evaluate and analyze the impacts (e.g., water yield, sediment production, air quality modeling) of any new modified alternative, and display those impacts in the FEIS. For example, we caution that this modified alternative may be less sensitive to fisheries and watershed protection in the Wyman Gulch drainage. Potential adverse impacts to Wyman Gulch Creek would need to be evaluated further. It may be that some of the suggested Alternative D units in the Wyman Gulch drainage (i.e., units 1A, 1B, 2A, 2B) would need to be dropped or deferred or employ less damaging logging techniques (e.g., helicopter, skyline, or winter logging) to avoid excessive adverse impacts in Wyman Gulch Creek. Dropping these Wyman Gulch units would bring the timber harvest down to 6,062 MBF, still slightly above the projected sawtimber harvest of the current preferred alternative.

The point we want to emphasize is that other combinations of treatment units and logging methods may be available that better address the fisheries, watershed, big game habitat, timber supply, and roadless issues, and that better optimize the resource trade-offs involved. We suggest that the Forest Service review other potential combinations of treatment units/methods to better optimize the ability of the preferred alternative to address project purpose and need and the significant issues.

Inclusion or discussion of such additional alternative evaluations in the FEIS would better explain to the public the trade-offs involved in making land management decisions, and may lead to improved public acceptance of decisions.

The EPA's more detailed discussion of alternatives and our other questions and/or comments regarding the analysis, documentation, or potential environmental impacts of the Boulder and Wyman Gulch Vegetation Treatment project are included in the enclosure with this letter.

Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action and alternatives in an EIS, the Boulder and Wyman Gulch Vegetation Treatment DEIS has been rated as Category EC-2 (Environmental Concerns - Insufficient Information). A copy of EPA's rating criteria is attached.

As can be seen from the enclosed comments, we believe additional information is needed to better explain the rationale for selection of treatment methods/units in alternatives. We have environmental concerns regarding potential impacts to existing degraded water quality/fisheries in the project area. EPA believes additional information is needed to fully assess and mitigate all potential impacts of the management actions.

The EPA appreciates the opportunity to review and comment on the DEIS. If we may provide further explanation of our concerns please contact Mr. Steve Potts of my staff in Helena at (406) 441-1140 ext. 232. Thank you for the opportunity to comment.

Sincerely,

John F. Wardell

John F. Wardell
Director
Montana Office

Enclosure

cc: Carol Campbell/Larry Kimmel, EPA, 8EPR-EP, Denver
Ann Puffer, Forest Service-Region 1, EAP, Missoula
Steve Tralles, MDEQ-WQD, Helena
Cliff Walker, Forest Service-Region 1, FRM, Missoula
George Bain, District Ranger, Philipsburg

SUMMARY OF RATING DEFINITIONS

ENVIRONMENTAL IMPACT OF THE ACTION

LO--LACK OF OBJECTIONS

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC--ENVIRONMENTAL CONCERNS

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO--ENVIRONMENTAL OBJECTIONS

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU--ENVIRONMENTALLY UNSATISFACTORY

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

ADEQUACY OF THE IMPACT STATEMENT

CATEGORY 1--ADEQUATE

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

CATEGORY 2--INSUFFICIENT INFORMATION

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

CATEGORY 3--INADEQUATE

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information,data, analyses, or discussions are of such magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Impacting the Environment."

EPA Comments on Boulder and Wyman Gulch Vegetation Management Draft Environmental Impact Statement

BRIEF PROJECT OVERVIEW:

The Beaverhead-Deerlodge National Forest, Philipsburg Ranger District, has evaluated no action, Alternative A, and five action alternatives, Alternatives B, C, D, E, and F, for vegetation and travel management in the 21,000 acre Boulder Wyman project area northeast of Philipsburg. All action alternatives implement different levels and combinations of timber harvest methods, road management and prescribed fire to provide a range of timber size classes to restore and maintain natural ecological functions and improve forest stand health including Douglas-fir stands, quaking aspen, and shrubs for wildlife, and to provide a timber supply to the wood products industry, and to close and obliterate roads no longer needed for management and to increase elk habitat effectiveness. Alternative D is the preferred alternative.

Alternative D would harvest 1,078 acres of sawtimber (6,001 MBF) and 199 acres of poletimber (831 MBF) in six harvest areas; construct 1.7 miles of temporary road; and recondition 14.9 miles of existing road. Underburning within harvest units and use of prescribed fire is proposed on 1,702 acres of parklands, aspen stands, and open forest stands outside of harvest units to reestablish quaking aspen and improve woody forage. Alternative D also proposes travel management changes which include establishing an area closure to provide additional elk security by closing Forest Road 8404 for September 1 to December 1. Several spur roads tributary to Forest Roads 1530, 8404, and 8405 would be closed yearlong to increase elk habitat effectiveness and to remove unneeded roads.

COMMENTS:

1) The rationale for selection of the individual treatment units for the action alternatives is unclear in many cases. It is difficult for the reader of the DEIS to understand specific reasons for inclusion of units in one alternative but not another. We believe it would be helpful to include additional discussion of the rationale for selection of particular treatment methods/units for alternatives. This would improve public understanding of the proposed project, and better achieve the public disclosure purpose of the EIS.

It may be that the optimal alternative from a resource and environmental perspective would be to construct a new or modified alternative by picking and choosing treatment units from among the present action alternatives. Improved explanation of the rationale for inclusion of specific units in individual alternatives would assist the reader in suggesting construction of a modified alternative by picking and choosing treatment units from among the alternatives. We believe more meaningful suggestions for treatment units for a preferred alternative may

be forthcoming to the Forest Service if improved rationale for selection of the treatment units for the alternatives were provided.

We do not mean that detailed discussion of the rationale for each individual treatment unit is needed. Some additional discussion or explanation of the rationale for inclusion of at least some of the clusters of units in alternatives, however, would assist the reader in understanding why some units are included in one alternative but not another.

A few examples where the rationale for selection of the treatment unit are unclear, or where questions arise are as follows:

a) Alternative C is stated to address big game habitat by deferring harvest in the majority of South Boulder Creek (page II-7). Yet Alternative D, which is also designed to address the big game habitat issue, includes harvest in the South Boulder Creek drainage. Why is deferral of harvest in South Boulder Creek drainage needed to address the big game habitat objective of Alternative C, but harvest in this drainage is proposed in Alternative D? Should the South Boulder Creek treatment units be deleted from Alternative D to address the big game habitat issue? Could the South Boulder Creek harvest units be included in Alternative C without sacrificing big game habitat and fisheries and watershed protection objectives?

b) Alternative C includes units 2A, 2B, and 2C south of the confluence of Wyman Gulch Creek and South Boulder Creek. Presumably harvest of these units is compatible with the fisheries, watershed protection, and big game habitat goals of Alternative C. Why would these units not be included in Alternative D? These units are located outside the Roadless Area and would appear to be compatible with the goals of Alternative D, (i.e., big game habitat and roadless protection).

c) Why are Alternative C units 3A and 3B in the upper Wyman Gulch drainage not included with Alternative D? Since these units are outside the Roadless Area one would think they would be compatible with Alternative D goals (and would be protective of fisheries and watersheds)?

d) Alternative F maximizes protection to bull trout habitat in the Boulder Creek drainage by directing timber harvest to Wyman Gulch. However, Alternative C which addresses the fisheries and watershed protection issue, includes harvest of 276 acres (units 4A, 4B, 4C) in the Boulder Creek drainage. It is stated (page IV-40) that adverse effects to aquatic resources would be limited with these Alternative C

treatment units by locating harvest units on upper slope locations, minimizing road reconstruction, and harvesting timber using logging systems that minimize ground disturbance. Could Alternative C units 4A, 4B, and 4C be included in Alternative F without sacrificing protection to bull trout habitat in the Boulder Creek drainage? Perhaps the high levels of timber harvest proposed in Wyman Gulch drainage with Alternative F, could be moderated if Alternative C units 4A, 4B, & 4C were substituted for some Wyman Gulch Alternative F harvest units.

2) Alternatives C and F would appear to result in less risk to aquatic resources on the Forest than Alternative D, the preferred alternative, however, Alternatives C and F would also restore fewer acres of the natural functions of the forested and grassland/shrubland ecosystems, (i.e., 216 acres for Alternative C; 679 acres for Alternative F; and 2,478 acres for Alternative D). Alternative F would also exacerbate already high sediment yields in the Wyman Gulch drainage. Alternative D results in greater levels of forest fuels reduction, thus reducing the potential severity of adverse air quality impacts of potential future wildfires (albeit at a greater risk to aquatic resources now).

The EPA recognizes that such resource trade-offs are involved in land management decisions. We believe, however, that it may be possible to construct a modified preferred alternative by selecting treatment units/methods from among the current alternatives to better optimize the ability of the preferred alternative to address project purpose and need and the significant issues. We suggest that the Forest Service further evaluate the individual treatment methods/units and consider constructing a modified preferred alternative that may better address project purpose and need and the significant issues.

An example of a modified alternative which we suggest that the Forest Service evaluate would include the following:

Proposed treatment units in Alternative C, with the exception of deleting unit 5 in the Roadless Area (to be sensitive to the Roadless issue). Although we do believe that a well planned and managed underburning program could be accommodated without unduly impacting roadless lands or fisheries and big game habitat.

Perhaps also including units 1A, 1B, 2A, 2B, in the Wyman Gulch drainage and units 3C, 3D, 3E, and 3F in the South Bouler Creek drainage from Alternative D. (Also note comment number 3 below regarding underburning)

It would appear that such a modified alternative would be sensitive to the big game habitat and roadless issues of

Alternative D, and be more sensitive to the bull trout fisheries in the Boulder Creek drainage than the preferred alternative (since it would delete Alternative D units which appear to be located closest to tributaries to Boulder Creek, and otherwise utilizes the logging units/methods of Alternative C). This modified alternative would involve harvest of 8,536 MBF of sawtimber and 516 MBF of post and pole volume, and thus, would appear to be more sensitive to the timber supply and economics issue.

We note of course that the Forest Service will need to evaluate and analyze the impacts (e.g., water yield, sediment production, air quality modeling) of any new modified alternative, and display those impacts in the FEIS. For example, we caution that this modified alternative may be less sensitive to fisheries and watershed protection in the Wyman Gulch drainage. Potential adverse impacts to Wyman Gulch Creek would need to be evaluated further. It may be that some of the suggested Alternative D units in the Wyman Gulch drainage (i.e., units 1A, 1B, 2A, 2B) would need to be dropped or deferred or employ less damaging logging techniques (e.g., helicopter logging) to avoid excessive adverse impacts in Wyman Gulch Creek. Dropping these Wyman Gulch units would bring the timber harvest down to 6,062 MBF, still slightly above the projected sawtimber harvest of the current preferred alternative.

The point we want to emphasize is that other combinations of treatment units and logging methods may be available that better address the fisheries, watershed, big game habitat, timber supply, and roadless issues and better optimize the resource trade-offs involved. **Inclusion or discussion of such additional alternative evaluation in the FEIS would better explain to the public the trade-offs involved in making land management decisions, and may lead to improved public acceptance of decisions.**

3) It would be helpful if the reasoning for excluding underburning outside of harvest areas for Alternative C were explained in greater detail. Alternative C is intended to address the fisheries and big game habitat issues. Fisheries and big game habitat may be threatened in the long term by allowing forest fuels to accumulate unchecked, since uncontrolled wildfire, which may be more likely to occur in the future without underburning, could have significant adverse effects upon both fisheries and big game habitat.

We believe that judicious use of prescribed fire may provide the best overall resource protection scenario (e.g., low intensity fire in specific planned locations spread out over time so that some vegetative cover could become reestablished before the next phase of prescribed fire). We recommend that the Forest Service identify locations outside of harvest units where

judicious underburning could be employed with minimal risk to fisheries and big game habitat. We suggest that site-specific evaluation of underburning be incorporated into Alternative C or any other modified preferred alternative. It would appear that a well planned and managed underburning program could be accommodated without unduly impacting fisheries and big game habitat (or roadless lands).

4) It is stated on page IV-21 that "Alternative C has no prescribed burning areas," yet the discussion of Alternative C in Chapter II indicates that prescribed burning will be included with Alternative C. It is our understanding that prescribed burning is not proposed with Alternative C outside of harvest units. To avoid confusing readers we suggest that the statement on page IV-21 more clearly indicate that Alternative C has no prescribed burning <u>outside harvest units</u>.

5) We are pleased to see that all proposed harvest units under alternatives C through F would stay out of riparian habitat conservation areas (RHCAs), and that a minimum 300 foot buffer will be established between all harvest units and fish bearing streams, and that heavy equipment will not be operated in perennial seeps and springs.

We would encourage the Forest Service to expand the buffer to include all streams, since significant quantities of sediment can enter fish bearing streams from non-fish bearing tributaries. We encourage the Forest Service to delineate and mark the RHCAs and perennial seeps and springs and wetlands on maps and on the ground before harvesting so that timber contractors will be able to avoid them.

6) We are pleased that the preferred alternative includes no new permanent roads, and that the 4 miles of temporary road will be constructed in areas of low erosion potential and that roads will be obliterated after use. We are also pleased that existing system roads will be surfaced to reduce erosion.

7) We note that historically the Boulder Creek drainage provided important spawning and rearing habitat for migratory bull trout and westslope cutthroat trout from the upper Clark Fork River (page III-27), and that the bull trout population is at moderate to high risk of extinction (page III-28). This drainage has been designated a priority watershed in the Inland Native Fish Strategy (INFS).

We are concerned about potential adverse impacts to bull trout habitat that may result from proposed Alternative D timber harvests in the Boulder Creek drainage (units 5A, 5B, 5C, 5D, 5E, 5F, 5G, 5H, 6A, 6B, 6C), and from road construction (0.4 mile of temporary road) and road reconstruction (3.4 miles). It is stated that road construction and reconstruction and timber

harvest will have the potential to deliver sediment to Boulder Creek affecting spawning, rearing, and overwinter habitat for native salmonids (page IV-42).

Alternative D harvest unit acreage in the upper Boulder Creek drainage totals 241 acres of sawtimber, including 229 acres of clearcuts, and 172 acres of post and pole harvest. Harvest units in the South Boulder Creek drainage total 156 acres (units 3A, 3B, 3C, 3D, 3E, 3F, 3G). We are also concerned about Alternative D's proposed 1.1 miles of temporary road construction and 214 acres of harvest along both sides of Swamp Gulch Creek even with the proposed buffer (page IV-41). We note that sediment produced by activities in Swamp Gulch will be transported to Boulder Creek, and could affect the spawning, rearing, and over winter habitat for fish in Boulder Creek (page IV-42). It is stated (page IV-48) that Alternative D in conjunction with other ground disturbing activities in the Boulder Creek drainage may continue to incrementally erode the quality of aquatic habitat in the Boulder Creek drainage.

We believe that the Forest Service should consider carrying out logging in the Boulder Creek drainage, including its South Boulder Creek and Swamp Gulch tributaries, with less damaging skyline or helicopter or winter logging methods to reduce ground disturbance and erosion potential in this priority watershed.

8) We are pleased that several projects have been or currently are being implemented, or are scheduled, in the priority watershed of the Boulder Creek drainage that will, over time, improve instream habitat conditions, water quality, reduce the effects of livestock grazing, and reduce sediment delivery to streams. We are particularly pleased that the Forest Service initiated and completed a reclamation project at the Brooklyn Mine removing waste rock and mill tailings that were eroding into Boulder Creek in the fall of 1995. We applaud the Forest Service's effort to address this mine related water quality problem.

9) We note that habitat conditions in South Boulder Creek are stated to be generally good (page III-28), with areas of concern including low pool quality, lack of large woody debris, and high instream sediment levels in the lower reaches. We are pleased to see it stated (page IV-33) that Forest Service analysis shows that none of the alternatives are expected to increase sediment yields in South Boulder Creek above current conditions, but note that this appears to be contradicted somewhat by the statements on page IV-41 that indicates that results from WATSED predict increased sediment production in the lower reach of this drainage due to the location of the prescribed fire and harvest units, and that some additional sediment will likely be routed to this stream as a result of harvest and prescribed fire activities. Please explain this apparent contradiction.

10) It is stated (page IV-41) that a portion of Road 1503 that contributes the greatest amount of sediment to South Boulder Creek will not be improved with any action alternatives. We encourage the Forest Service to review possible harvest units to determine if it may be possible to include units that would enable funding of improvements to the portion of Road 1503 that contributes the greatest amount of sediment to South Boulder Creek.

11) We note that instream habitat conditions in Wyman Gulch Creek are reported to be poor (page III-28), with high levels of instream sediment, poor quality pools, reduced streambank stability, lack of undercut banks, and high/width depth ratios. Road densities in the drainage are high (averaging 3.1 miles/square mile), resulting in sediment yields 134% of natural. Livestock impacts to Wyman Gulch Creek are reported to continue to degrade habitat.

We are pleased to see that improvements in livestock management to address grazing impacts to Wyman Gulch (and Swamp Gulch) will be made in the future with the Stewart Gold AMP.

We are concerned, however, about proposed timber harvest activities in the Wyman Gulch drainage that may exacerbate these already degraded aquatic habitat conditions. The preferred alternative includes 681 acres of sawtimber harvest and 27 acres of post and pole harvest in the Wyman Gulch drainage. Tractor logging is proposed on all these Wyman Gulch Alternative D units with the exception of unit 2B (skyline logging). We believe that the Forest Service should consider using logging methods which minimize ground disturbance on more of these Alternative D Wyman Gulch units to reduce further adverse impacts in this already degraded drainage. We note that Alternative C units 1C and 1D, which appear to correspond to Alternative D units 4C, 4D, and 4E, propose helicopter logging. Could units 4C, 4D, and 4E in Alternative D be logged with helicopters or at least during the winter to avoid exacerbating already poor conditions in Wyman Gulch Creek?

12) We are concerned about the concept in Alternative F of concentrating all harvests in a single drainage (i.e., the Wyman Gulch drainage). While we recognize that Alternative F is suggested as a means of avoiding impacts to the bull trout habitat in the Boulder Creek drainage, such concentration of timber harvest in one drainage is likely to exacerbate the already degraded condition of Wyman Gulch Creek. We believe a more balanced harvest that spreads impacts in several drainages and uses less damaging logging methods (e.g., skyline, helicopter and winter logging) is preferable to designating one drainage as a sacrifice drainage. We note that westslope cutthroat trout, a Forest Service sensitive species, and State species of special concern, occur in Wyman Gulch Creek (page III-27).

13) We also note that it is reported that livestock could be pushed into riparian areas since there are no harvest units in riparian areas (page IV-28). While a reference to the possibility of extending fences is suggested, there doesn't seem to be a clear commitment that needed fences will be constructed. Given the existing high sediment levels and degraded conditions in the Wyman Gulch drainage, we would encourage the Forest Service to extend allotment boundary fences as needed to protect riparian areas and streambanks from overgrazing.

14) The EPA believes that water quality/aquatics monitoring is a necessary and crucial element in identifying and understanding the consequences of one's actions, and should be an integral part of any management decision. We believe a monitoring plan should be identified in the NEPA documents.

We are pleased to see the DEIS indicate (page II-32) that water quality/aquatics monitoring would take place. This monitoring would include: fish populations and instream habitat conditions in the Boulder Creek drainage; effectiveness of fish passage for culvert replacements on Forest Road 1530; large woody debris retention and changes in instream habitat in South Boulder Creek; effectiveness of riparian mitigation measures in Wyman Gulch; and monitoring instream habitat, aquatic invertebrates, and fish at the Brooklyn mine reclamation project.

We suggest that additional monitoring may be needed to detect hydrologic or aquatic habitat or biological effects in impacted drainages particularly degraded Wyman Gulch Creek. It may also be valuable to monitor sediment transport to Boulder Creek from tributaries where timber harvest is carried out (South Boulder Creek, Swamp Gulch Creek and Copper Creek).

We would like to see clear water quality monitoring goals and objectives identified and described in the FEIS (e.g., what questions are to be answered; what parameters are to be monitored; where and when monitoring will occur; who will be responsible; how the information will be managed and evaluated; and what actions will be taken based on that information).

The monitoring plan should at a minimum include sampling design, methodology, parameters, sampling site locations shown on a map, and frequency or pattern of sampling. The EPA strongly recommends incorporation of a biological component, such as rapid bioassessments using macroinvertebrates, in a monitoring program. Monitoring of the aquatic biological community is desirable since the aquatic community integrates the effects of pollutant stressors over time and, thus, provides a more holistic measure of impacts than grab samples of turbidity and suspended sediment. We encourage you to use the following reference materials in designing and disclosing a monitoring program:

"Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska", Lee H. McDonald, Alan W. Smart, and Robert C, Wissmar; May 1991; EPA/910/9-91-001.

"Rapid Bioassessment Protocols for Use in Streams and Rivers", James A. Plafkin; May 1989; EPA/444/4-89-001.

Such specific monitoring information should be disclosed in the FEIS to assure that the effects (i.e., physical, chemical and biological effects) of the proposed activities on water quality and the aquatic ecosystem will be determined, and to validate and document BMP effectiveness in protecting water quality, beneficial uses, and Montana Water Quality Standards. This specific information is also needed to provide assurance that instream beneficial uses will be maintained.

We note that the BMP Implementation Process described in Appendix A indicates that monitoring data must be collected and used in the feedback mechanism to management to ensure that BMPs are effective and that beneficial uses are protected. How can the BMP Implementation Process work if adequate water quality monitoring is not in place to verify that water quality standards and instream beneficial uses are maintained? Without this information the EIS is inadequate to fully assess the role of monitoring and evaluation in project implementation.

15) Alternative D is stated to include timber harvest in old growth stands in the Hickey Hill and lower South Boulder areas (page IV-21), with 54 acres and 5 acres being reduced in these old growth stands, respectively. It is shown in Table IV-15 (page IV-19) that the percent of old growth retained in the project area will not change with the preferred alternative. We are pleased that the extent of timber harvest proposed with the preferred alternative is limited so that the overall existing percentage of old growth retained in the project area does not change.

16) The EPA appreciates the efforts taken to understand the potential impacts of your management actions on the air resource. We believe monitoring of activities will be beneficial to improving that understanding. We encourage you to develop a monitoring plan to help you establish a quantitative and qualitative understanding of the impacts to air quality. Such a monitoring plan would also help to validate quantitative predictions for future activities. Careful scheduling of the many burning activities to coincide with proper climatological and meteorological conditions will be necessary to avoid air quality problems. We note that the PM-10 nonattainment area of Butte is locate 40 miles to the northeast of the project area, and the Class I air quality area of the Anaconda-Pintler Wilderness Area, is located 24 miles south of the project area.

17) The discussion of alternatives in Chapter II refers to the significant issues to which alternatives are responding by number, however, the discussion of significant issues in Chapter I (page I-9) does not identify issues by number. To avoid confusion or misunderstanding to the reader we recommend that the significant issues either be numbered in Chapter I of the FEIS, or better yet identified by issue name in the discussions of alternatives in Chapter II (e.g., "Alternative C addresses the fisheries and cumulative watershed effects issue ...." rather than "Alternative C addresses issue #1 ....", etc.).